REMARKS

1. Claim Status:

- Claims **1-24, 26, 27** and **29-38** are pending.
- Claims **1-11, 17-21, 26, 27, 29-31, 33-35, 37** and **38** are rejected.
- Claims **12-16, 22-25, 28, 32-33** and **36** are cancelled.

Claim Rejections – 35 USC §103(a)

2. Claims 1-10, 17-21, 27-31, 33, 35 and 37

The Office rejected claims **1-10, 17-21, 27-31, 33, 35** and **37** under 35 USC §103(a) as being unpatentable over Tadros et al. (WO 01/02192 A1) in view of Nakagawa et al (3,901,819). Applicants respectfully traverse because *Tadros WO '192* is not a proper reference.

Tadros '192 was published 01/10/2002. The instant application claims the benefit of US Provisional Application Serial No. 60/397,424, filed 07/19/2002 (see specification, p. 1, lines 9-11). Attachment A is a copy of the '424 provisional as filed. Attachment B is a copy of the Filing Receipt for the regular application 10/623,370, which confirms that the instant application ('370) claims the benefit of said provisional.

In the advisory action mailed 07/11/2006, the Office said that applicant was not entitled to the filing date of the provisional application because the provisional did not disclose a "sorbent additive". Applicants respectfully traverse.

In the Provisional Application 60/397,424, filed 07/19/2002, on the second page (the page that starts with the word "Description" at the top), the last paragraph states:

> *"This TA presents a convenient method to formulate DF-200 for practical use. It uses a highly* ***sorbent material*** *(sorbitol - a sugar alcohol) to* ***'dry out'*** *the liquid peroxide activator (propylene glycol diacetate or glycerol diacetate). The*

activator ***becomes a free flowing powder*** *which is more convenient to handle in the field."* [emphasis added]

Applicants respectfully submit that the words "highly sorbent material" used to "dry out the liquid peroxide activator" does, in fact, disclose the generic concept of using a sorbent additive in the manner recited in the regular application ('370). Specificaly, the '370 specification, at page 51, lines 7-20, teaches the following:

"DF-200 With **Sorbent Material** Added to "**Dry Out**" Liquid Ingredients

According to the present invention, a water-soluble, highly adsorbent **additive** is used to "**dry out**" one or more liquid ingredients of the family of DF-200 decontamination formulations, such as the liquid bleaching activator (i.e., peroxide activator) that is used for the "Part C" component of a multi-part, kit configuration (e.g., 3-part or 4-part configuration). A goal of "drying out" the liquid bleaching activator(s) is to produce a **dry, free-flowing powder** that can be placed in protective packaging with a desiccant, have an extended shelf life, be more convenient to handle and mix in the field (as compared to handling and mixing a liquid), and not leave a residue. In this way, the sorbent material acts as a drying agent.

The process of "drying out" the liquid bleaching activator (e.g., propylene glycol diacetate or glycerol diacetate) is not really an evaporation process as it is commonly understood. Rather, the present invention uses a **sorbent additive that absorbs and/or adsorbs (i.e., at room temperature) substantially all of the liquid activator to produce a powdered, free-flowing product that is easier to handle."** [emphasis added]

Applicants use the words "sorbent additive" and "sorbent material" interchangeably throughout the '370 application.

In both the provisional application, and the regular application, applicants have consistently followed the style of placing an example of a suitable material in-between parentheses ( ), to indicate an example. Specifically, in the provisional, the text says

"highly sorbent material (sorbitol - a sugar alcohol)". This means that sorbital is an specific example of a sorbent material, with "sugar alcohol" being broader class of polyols. There is nothing in the disclosure of the Provisional that explicity limits the sorbent material to only being sorbitol.

In summary, applicants submit that the '424 Provisional application **fully supports** the teaching of a "sorbent additive", as it is used and claimed in the '370 regular application.

Therefore, because *Tadros '192* was published **less than 1 year** prior to applicant's effective filing date of 07/19/2002, *Tadros '192* is not a proper "102(b) type" reference for use in 103(a) rejections. Hence, the rejections of claims **1-10, 17-21, 27-31, 33, 35** and **37** should be withdrawn.

Claim **33** is cancelled.

Since the Office has made no other rejections of claims **1-10, 21, 35** or **37**, then these claims are now in condition for allowance.

However, in order to expedite prosecution, applicants have voluntarily rewritten claim **21** in **independent form**, including all of the limitations of the base claim and any intervening claims.

3. Claims 11, 26, 34, and 38

The Office rejected claims **11, 26, 34,** and **38** under 35 USC §103(a) as being unpatentable over *Tadros et al. WO 02/02192*, all said patents individually in view of *Nakagawa et al* (3,901,819) and further in view of *Huth et al.* (6,448,062).

As presented above, *Tadros '192* is not a proper reference. Hence, the rejections of claims **11, 26, 34,** and **38** under 35 USC §103(a) should be withdrawn.

Since the Office has made no other rejections of claims **11, 26, 34,** or **38**, then these claims are now in condition for allowance.

However, in order to expedite prosecution, applicants have voluntarily rewritten claims **26** and **34** in **independent form**, including all of the limitations of the base claim and any intervening claims.

4. Claims 27, 29, 31, and 33

The Office rejected claims **27, 29, 31,** and **33** under 35 USC §103(a) as being obvious over by *Krezanoski* (3,852,210) in view of *Nakagawa et al* (3,901,819).

In response, applicants amended claim **27** by limiting the sorbent additive to be selected from the group consisting of sodium sulfate, calcium hypochlorite, calcium chloride, potassium bromide, potassium carbonate, zeolytes, precipitated silicas, percarbonates, dendritic salt (sea salt), potassium bromide, urea, and polyols, and combinations thereof.

None of these sorbent additives are taught by *Krezanoski* or *Nakagawa*. Hence, a *prima facie* case of obviousness has not been made, and the rejection of claim **27**, as currently amended, is improper.

Claims **29** and **31** depend from claim **27**, and are now in condition for allowance.

Applicants wish to point out a pair of conflicting statements made by the Office in the instant Office Action. On page 5, the Office states: *"Krezanoski differs from applicant's claimed invention in that there is* ***no direct disclosure*** *to the further addition of a bleaching activator selected from the group consisting of O-acetyl, N-acetyl, and nitrile group bleaching activators."* However, on page 6, the Office states just the **opposite**: *"...Is the actual disclosure of Krasanoski's Example wherein the Acetanilid component* ***reads on*** *applicant's N-acetyl type bleach activator".* This is confusing.

In either case, nevertheless, applicants believe that **Acetanilid** is not a bleach activator...rather, it is a peroxide stabilizer. In order to be a bleach activator, the nitrogen must be directly bound to 3 carbon atoms (i.e., not an H atom, as in Acetanilid).

5. Claims 17-20, 27, 29-31 and 33

The Office rejected claims **17-20, 27, 29-31** and **33** under 35 USC §103(a) as being unpatentable over *Hardy* 4,536,314 optionally in view of *Nakagawa* 3,901,819 and/or *Hardy* 4,853,143. The Office notes that *Hardy* lists *sodium citrate* as an ingredient in example 24.

In response, applicants have deleted *sodium citrate* from the list of sorbent additives in claim **17**. Nowhere does *Hardy ('143)* or *Hardy ('314)* or *Nakagawa* teach the use of dendritic salt, calcium hypochlorite, calcium chloride, polyols, urea, or potassium bromide as a sorbent additive, as recited in claim **17**, as currently amended.

Since not all of the elements of amended claim **17** are taught by these references, a *prima facie* case of obviousness cannot be supported. Accordingly, the rejection of claim **17**, as currently amended, has been overcome.

Claims **18-20** depend from claim **17**. Since claim **17** is now in condition for allowance, it follows that dependent claims **18-20** are also now in condition for allowance.

Applicants also deleted *sodium citrate* from the list of sorbent additives in claim **27**. Nowhere does *Hardy ('143)* or *Hardy ('314)* or *Nakagawa* teach the use of sodium sulfate, calcium hypochlorite, calcium chloride, potassium bromide, potassium carbonate, zeolytes, precipitated silicas, percarbonates, dendritic salt (sea salt), potassium bromide, urea, and polyols, and combinations thereof as a sorbent additive, as recited in claim **27**, as currently amended.

Since not all of the elements of amended claim **27** are taught by these references, a *prima facie* case of obviousness cannot be supported. Accordingly, the rejection of claim **27**, as currently amended, has been overcome.

Claims **29-31** and **33** depend from claim **27**. Since claim **27** is now in condition for allowance, it follows that dependent claims **29-31** and **33** are also now in condition for allowance.

6. New claims 39-42

New claims 39-42 have been added, and are fully supported by the specification. In particular, the claim limitations for the element "sorbent additive" are taken directly from the '340 provisional application.

CONCLUSION

Applicants have responded to each and every objection and rejection, and urge that claims **1-11, 17-21, 26-27, 29-31, 34-35, 37-38,** and new claims **39-42** as presented and amended are now in condition for allowance. Applicants request expeditious processing to issuance.

The Office is authorized to charge **Deposit Account # 19-0131** for any necessary fees regarding this response.

Applicants wish to point out that a fee of $600 (for 3 additional independent claims: 21, 26, and 34) **was already charged** to this deposit account on July 3, based on the amendment after final that was filed June 26, 2006. Therefore, only an additional $ 200 should be charged for new independent claim 39, and $ 150 for the three new dependent claims 40-42.

Respectfully submitted,

Robert D. Watson

Robert D. Watson
Reg. No. 45,604

Ph: (505) 845-3139
Fax: (505) 844-2829
e-mail: rdwatso@sandia.gov

Sandia National Laboratories
P.O. Box 5800 MS-0161
Albuquerque, NM 87185-0161
Customer No. **20567**

Certificate of Transmission under 37 CFR 1.10

I hereby certify that this correspondence was transmitted via facsimile to the U.S. Patent and Trademark Office at phone number **571-273-8300** on **June 26, 2006.**

Robert D. Watson

Robert D. Watson

APPENDIX A

SF 1155-YD # (1-2002)

UCI-Patent Caution

Sandia National Laboratories

DISCLOSURE OF TECHNICAL ADVANCE

(Patent Office Use Only)

SD: 7250

S:

Assigned to:

B&R Code:

How to File a Technical Advance

- *Attach to this form a description of the technical advance, including what it does, how it works, and what makes it different from existing technology. Have at least one Originator, and one independent witness (non-Originator) sign and date each page added to this cover sheet.*
- *Attach copies of laboratory notebook pages, test data, photographs, and pertinent references (yours) and others). Color copies are preferred.*
- *This page must be signed by your organization's Authorized Derivative Classifier, a witness, and yourself.*
- *Send the Original and two copies to Patents, Org. 11500, MS 0161.*

Descriptive Title: Powdered Additive for DF-200

TA Preparer: Mark D. Tucker Date: 7/18/2002

TA Originators *(Those associated with the development of the technology being reported)*

Full Names *(add name of Company or University if not a Sandia Employee)*	SS No. (SNL only)	MS	Org.	Phone
Mark D. Tucker	322-58-8508	0734	6245	505-844-7264
Bob Comstock, Envirofoam Technologies, Inc.				256-319-0137
James W. Morand, Envirofoam Technologies, Inc.				256-319-0137

- Is this Sandia work? ☒ Yes ☐ No. If Yes, list source of TA Funding: Project: 37858 Task: 01
- Is the TA RELATED to an external collaboration? ☒ CRADA ☐ WFO ☐ NFE ☐ Informal ☐ None

If boxes checked, give: Name of Outside Partner Envirofoam ID number for agreement

- Is this work LDRD funded? ☐ Yes ☒ No

Project History:

1. Has the material in this TA been disclosed to non-Sandians? (journal, SAND report, etc.)..... ☒ Yes ☐ No
2. Are you planning to disclose the material in this TA?..... ☒ Yes ☐ No
3. Is the invention in use for its intended application?..... ☐ Yes ☒ No
4. Have you offered to let non-Sandians use the invention?..... ☒ Yes ☐ No
5. Is the material in this TA recorded in a lab notebook or other permanent record?..... ☒ Yes ☐ No

Please provide details and DATES for any questions marked "Yes".

Question 1: Material has been disclosed to Envirofoam Technologies, Inc., a joint developer; Question 2: Material has been disclosed to Envirofoam Technologies, Inc. a joint developer; Question 4: Envirofoam Technologies, Inc.; Question 5: SNL notebook 082001MDT, Page 66 and Envirofoam Technologies, Inc. meeting notes

Classification: Title U Total Disclosure U Detailed Description of TA U

Authorized Derivative Classifier: Larry D Bustard Org.: 6245 Date: 7/18/2002

SIGNATURES TA Preparer: Mark Tucker Org.: 6245 Date: 7/18/2002

Witness (non-Originator): Larry D Bustard Org.: 6245 Date: 7/18/2002

(Printed Name) Larry D BUSTARD

UCI-Patent Caution

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Description
Sandia National Laboratories has recently developed DF-200, an enhanced decontamination formulation for the neutralization of chemical and biological warfare agents and biological pathogens, which is described in Technical Advance SD-6989 (Tucker, MD, 2001, "DF-200 – An Enhanced Formulation for the Decontamination and Mitigation of CBW Agents and Biological Pathogens", Sandia National Laboratories, SD-6989/S-97,643). Two formulations associated with DF-200 are summarized below:

DF-200HF (Enhanced Formulation for High Foam Applications):

2.00% Variquat 80MC (cationic surfactant)
1.00% Adogen 477 (cationic hydrotrope)
0.40% 1-Dodecanol (fatty alcohol)
0.05-0.10% Jaguar 8000 (cationic polymer)
0.50% Di(propylene glycol) Methyl Ether (solvent)
2.00-8.00% Bicarbonate salt (buffer and peroxide activator)
1.00-4.00% Hydrogen Peroxide (oxidant)
1.00-4.00% Propylene Glycol Diacetate or Glycerol Diacetate (peroxide activator)
80.00-92.05% Water

Note: The formulation must be adjusted to a pH value between 9.6 and 9.85 and is effective for decontamination of all agents tested.

DF-200NF (Enhanced Formulation for No Foam Applications):

2.50% Benzalkonium Chloride
1.00-8.00% Propylene Glycol Diacetate or Glycerol Diacetate
1.00%-16.00% Hydrogen Peroxide
2.00%-8.00% Potassium Bicarbonate
65.50%-93.50% Water

Note: The formulation must be adjusted to a pH value between 9.6 and 9.85 and is effective for decontamination of all agents tested.

The term 'High Foam' refers to the ability of a formulation to form a highly stable and persistent foam whereas a 'No Foam' formulation does not include foaming constituents that may be used for specific applications such as for the kill of biological organisms, batch processing (such as in chemical agent demilitarization neutralization processes), or spray applications. DF-200 utilizes a water-soluble peroxide activator (propylene glycol diacetate or glycerol diacetate).

The primary purpose for the delivery of DF-200 as a foam is to enable it to adhere to vertical surfaces and the underside of horizontal surfaces for a sufficient period of time to allow neutralization reactions to occur with chemical agents and biological pathogens (the required contact time is anywhere from 2 minutes to 45 minutes depending on the agent to be neutralized).

This TA presents a convenient method to formulate DF-200 for practical use. It uses a highly sorbent material (sorbitol – a sugar alcohol) to 'dry out' the liquid peroxide activator (propylene glycol diacetate or glycerol diacetate). The activator becomes a free flowing powder which is more convenient to handle in the field. Sorbitol is chemically unreactive in DF-200. In addition, it does not destroy the foaming properties of DF-200. The two powders (urea hydrogen peroxide and the sorbitol/activator/polyethylene glycol blend) may be added to the liquid portion of DF-200 together and treated as if they were one powder (although they must be stored separately).

DF-200HF with Solid Additives (no additional water required)

DF-200HF Part A (Liquid Foam Component):
20.0 g Variquat 80MC
10.0 g Adogen 477
4.0 g 1-Dodecanol
8.0 g Diethylene Glycol Monobutyl Ether
5.0 g Isobutanol
50.0 g Potassium Bicarbonate
18.0 g Potassium Hydroxide (the pH of Part A should be approximately 10.4)
933.0 g Water

DF-200HF Part B (Solid Oxidant Component):
97.0 g Urea Hydrogen Peroxide

DF-200HF Part C (Liquid Peroxide Activator):
20.0 g Propylene Glycol Diacetate or Glycerol Diacetate
40.0 g Sorbitol (Sorbigem Fines)
20.0 g Polyethylene Glycol 8000 (Carbowax 8000)

Note: This formulation as described above will produce 1 liter of foam solution. The pH of the final formulation should be between 9.6 and 9.85. To prepare this formulation, use the following procedure: Mix Part B and Part C into Part A. After dissolution, use within 6 hours.

The performance of DF-200HF in the configuration shown above for neutralization of chemical agent simulants is given in Figure 1 below:

Simulant	% Decontaminated		
	1 Minute	15 Minutes	60 Minutes
Mustard (HD)	61	91	Not Detected
VX	28	92	>99

Figure 1: Reaction rates in kinetic testing for the DF-200HF.

Tests against the anthrax spore simulant (*Bacillus globigii* spores) demonstrated 99.9999% (7-log) kill after a 60 minute exposure to DF-200HF.

One method for mixing Part C is also presented. This method is described below:
1. Place the sorbitol powder in a mixing vessel.
2. While mixing, slowly add the liquid peroxide activator (propylene glycol diacetate or glycerol diacetate). Mix until a fine powder (no lumps) is achieved.
3. While continuing to mix, slowly add the polyethylene glycol 8000.
4. Let dry for approximately 24 hours. Re-mix to break up any lumps that have formed.

Project No. 37950
Book No. 852001 MAT TITLE DE-200 Packaging

From Page No.

Drying (solidifying) propylene glycol diacetate

use PVP (polyvinylpyrrolidone) as a binder - use PEG to increase tablet strength

Use this to bind organic solution

Varisoft
dodecanol
propylene glycol
propylene glycol diacetate
& adogen

66-1

20 g pgd + 40 g bicarb
+ 30 g Stearb
+ 10 g clip
+ 5 g PEG

not free flowing
good powder - slightly sticky

To Page No

Witnessed & Understood by me, Date Invented by Date

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DE-200 Dried Activator

Book No. 2002MJ1

Page No. ...

-1-2 2 g pgda
0.25 g variquat
10 g Sorbitol
3 g citric acid
nearly ffp

1-2-1 2 g pgda
0.25 variquat
5 g Na citrate
.25 g 3 g Na Bisulfate (pH-)
3 g sorbitol
nearly ffp
good ffp after 2 days

test 21-3
20 g water
5.1 g 20-1-1
3.3 g 21-2-1
pH 9.8
Bilayer forms

test 21-4
20 g water
5.1 g 20-1-1
20-8-2 (3.3 g)
pH 9.3
Bilayer forms

1-5 20 g water + 5.1 g 20-1-1
bilayer forms

To Page No. ...

Witnessed & Understood by me, Date 5/23/02 Inventor [signature] Date

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SD-7250

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PROVISIONAL APPLICATION (35 U.S.C. § 1.111)

Assistant Commissioner for Patents
Box: Provisional Patent Application
Washington, DC 20231.

July 18, 2002

Sir:

In accordance with 35 U.S.C. 111(b), Applicants respectfully submit the enclosed invention description as a Provisional Patent Application: **Powdered Additive for DF-200**, by Mark D. Tucker, et al.

Respectfully Submitted,

Robert D. Watson

Robert D. Watson, Ph.D.
Reg. No. 45,604
Patent Agent
Sandia National Laboratories
Patent & Licensing Center
Org. 11000, Mail Stop 0161
Albuquerque, NM 87185-0161

Telephone: (505) 845-3139
Facsimile: (505) 844-2829

CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this New Provisional Application Transmittal and the documents referred to as enclosed therein are being deposited with the U. S. Postal Service on the date indicated below, in an envelope, as "Express Mail" with Mailing Label Number _____ addressed to: Assistant Commissioner for Patents, Box: Provisional Patent Application, Washington, DC 20231.

July 19, 2002
Date

Viola Campos
Viola Campos

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

INVENTORS		
Given Name (first & middle)	*Surname or Family Name*	*Residence (City and State or Country)*
Mark D.	Tucker	Albuquerque, New Mexico, USA
Bob	Comstock	Gardendale, Alabama, USA
James W.	Morand	Scottsdale, Arizona, USA

TITLE OF THE INVENTION (280 characters max)

Powdered Additive for DF-200

CORRESPONDENCE ADDRESS

Direct all correspondence to:

☒ Customer Number: 020567

which is:

Sandia National Laboratories
Patent and Licensing Center 11500
Mail Stop 0161
Albuquerque, NM 87185-0161

PATENT & TRADEMARK OFFICE
020567

ENCLOSED APPLICATION PARTS (CHECK ALL THAT APPLY)

☒ Specification Number of Pages: 4

☒ Drawing(s) Number of Sheets: 0

METHOD OF PAYMENT OF FEES FOR THIS PROVISIONAL APPLICATION

☒ The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account No: 19-0131

Filing Fee Amount: $160

☒ This invention was made under Contract DE-AC04-94AL85000 with the United States Department of Energy

Respectfully submitted:

Date July 18, 2002

Docket No: SD-7250

Signature: Robert D. Watson

Robert D. Watson, Reg. No. 45,604

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

APPENDIX B

SD-7250.1

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY.DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/623,370	07/18/2003	1614	1158	SD-7250	4	38	4

CONFIRMATION NO. 3175

FILING RECEIPT

OC000000011077932

020567
SANDIA CORPORATION
P O BOX 5800
MS-0161
ALBUQUERQUE, NM 87185-0161

Date Mailed: 10/22/2003

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

Mark D. Tucker, Albuquerque, NM;
Robert H. Comstock, Gardendale, AL;

Domestic Priority data as claimed by applicant

This application is a CIP of 10/251,569 09/20/2002
and claims benefit of 60/397,424 07/19/2002

Foreign Applications

If Required, Foreign Filing License Granted: 10/21/2003

Projected Publication Date: 01/29/2004

Non-Publication Request: No

Early Publication Request: No

Title

Decontamination formulation with sorbent additive

Copy sent to DOE 10/27/03